Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Periodic Table Problem Set #1**

Part 1: Periodic Families

**Use the Periodic Table to identify and explain the properties of periodic families, including alkali metals, alkaline earth metals, halogens, noble gases, and transition metals.**

1. Which of the following elements is an alkali metal?
   1. Sc
   2. Rb
   3. Fe
   4. Ca
2. Two properties of alkali metals are…
3. Which of the following is a halogen?
   1. Oxygen
   2. Argon
   3. Chlorine
   4. Nitrogen
4. Two properties of the halogens are…
5. Which of the following most likely describes a Group 12 element?
   1. nonmetal
   2. occurs in nature in elemental form
   3. gas at room temperature
   4. one electron short in outer shell
6. If an element is in Group 18 on the periodic table of elements, which statement would describe this element?
   1. The outer electron shell lacks one electron.
   2. The element is a good conductor of heat.
   3. The element is a metal.
   4. The element is a gas at room temperature.
7. The alkali metals are in Group 1 in the periodic table. Which of the following statements about the alkali metals is FALSE?
   1. They react violently with water
   2. They are metallic solids at room temperature
   3. They are not found in nature in an uncombined state
   4. They are relatively unreactive

Part 2: Metals/Nonmetals/Metalloids

**For each element below answer the following:**

1. Is it a metal, nonmetal, or metalloid?
2. What is one physical property of the element?
3. Is it in one of the periodic families we’ve learned about? *(e.g., alkali metal, alkaline earth metal, transition metal, halogen, noble gas)*

**EXAMPLE: Platinum (Pt)**

1. Platinum is a metal.
2. One physical property of platinum is that it is shiny.
3. Platinum is in the transition metal family.
4. Sodium (Na)
5. Oxygen (O)
6. Xenon (Xe)
7. Cadmium (Cd)
8. Magnesium (Mg)
9. Nickel (Ni)
10. Gold (Au)

Part 3: Vocabulary

*Match the following terms to their definitions.*

|  |  |
| --- | --- |
| 1. \_\_\_\_\_\_\_\_Reactivity of nonmetals | 1. Temp. that a solid becomes a liquid (ex: ice turning into water) |
| 1. \_\_\_\_\_\_\_\_Reactivity of metals | 1. Shiny, smooth, malleable, ductile, hard |
| 1. \_\_\_\_\_\_\_\_Reactivity of metalloids | 1. Shattered easily (ex: glass, nonmetals) |
| 1. \_\_\_\_\_\_\_\_Physical property | 1. Semi-conductors of electricity |
| 1. \_\_\_\_\_\_\_\_Melting point of nonmetals | 1. React with water and acid, can be magnetic |
| 1. \_\_\_\_\_\_\_\_Melting point of metals | 1. Melting and boiling points vary, can be various states at room temperature |
| 1. \_\_\_\_\_\_\_\_Melting point of metalloids | 1. Low melting points, typically gases at room temperature |
| 1. \_\_\_\_\_\_\_\_Melting point | 1. High melting points, solids at room temperature |
| 1. \_\_\_\_\_\_\_\_Malleable | 1. Groups 3-12 (D block, ex: Au) |
| 1. \_\_\_\_\_\_\_\_Location of transition metals | 1. Group 2 (ex: Mg) |
| 1. \_\_\_\_\_\_\_\_Location of noble gases | 1. Group 18 (ex: He) |
| 1. \_\_\_\_\_\_\_\_Location of halogens | 1. Group 17 (ex: F) |
| 1. \_\_\_\_\_\_\_\_Location of alkaline earth metals | 1. Group 1 (ex: Na) |
| 1. \_\_\_\_\_\_\_\_Location of alkali metals | 1. Dull, rough, brittle, soft |
| 1. \_\_\_\_\_\_\_\_Ductile | 1. Do not react with water or acid |
| 1. \_\_\_\_\_\_\_\_Conductor | 1. Do not conduct electricity |
| 1. \_\_\_\_\_\_\_\_Conductivity of nonmetals | 1. Describes something’s composition or appearance (ex: hardness, density, color) |
| 1. \_\_\_\_\_\_\_\_Conductivity of metals | 1. Conductor of heat and electricity (ex: copper) |
| 1. \_\_\_\_\_\_\_\_Conductivity of metalloids | 1. Conduct heat and electricity |
| 1. \_\_\_\_\_\_\_\_Brittle | 1. Can be shiny, have properties of metals and nonmetals |
| 1. \_\_\_\_\_\_\_\_Appearance of nonmetals (4 words) | 1. Can be reactive, their properties vary on the element |
| 1. \_\_\_\_\_\_\_\_Appearance of metals (5 words) | 1. Can be made into wire (ex: copper) |
| 1. \_\_\_\_\_\_\_\_Appearance of metalloids | 1. Can be hammered into thin sheets |